RIVERS AND FLOODS

[River and Flood Division, MERRILL BERNARD in charge]

By THOMAS S. SOUTHWICK

Precipitation during January was above normal over most of the country, but durations and intensities were not sufficient to cause other than minor flooding. This condition was changed abruptly on the 30th by widespread precipitation which inaugurated a flood situation that extended into February.

The west fork of the White River in Indiana went slightly above flood stage on the 7th and the Rock River in Illinois on the 10th. High temperatures—the week ending January 10 being one of the warmest January weeks of record—contributed an increment of melted snow to the rains causing these overflows.

Heavy rains over the Southeastern States on January 12–13 caused flood stages to be exceeded on the Tombigbee and Pearl Rivers. The Pearl River at Jackson, Miss., was above flood stage from January 17 to 25. Damage estimated at $1,000 occurred at Pearl River, La., due to the suspension of lumbering operations.

A slight, flashy rise occurred on the Sulphur River at Ringo Crossing, Tex., due to local rains on January 23–24.

Table of flood stages during January 1939

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
French Broad: Asheville, N. C.	*Feet* 6	30	30	6.6	*Feet* 30
EAST GULF OF MEXICO DRAINAGE					
Tombigbee: Lock No. 3, Ala.	33	15	20	38.4	18
Pearl:					
Jackson, Miss.	18	17	25	20.5	21
Pearl River, La.	12	20	22	12.2	21
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	10	10	10	10.3	10

Table of flood stages during January 1939—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin					
Tygart:	*Feet*				*Feet*
Dailey, W. Va.	11	30	(1)	13.4	31
Elkins, W. Va.	14	31	(1)	14.8	31
Belington, W. Va.	14	31	(1)	15.6	31
Midvale, W. Va.	11	30	31	12.3	30
Philippi, W. Va.	20	31	31	20.0	31
Monongahela: Lock No. 7, Greensboro, Pa.	30	31	(1)	31.6	31
Walhonding: Walhonding, Ohio	8	31	(1)	------	------
Little Sandy: Grayson, Ky.	15	30	(1)	------	------
Kentucky: Lock No. 9, Ky.	20	30	(1)	21.3	30
Barren: Bowling Green, Ky.	20	30	(1)	------	------
Green:					
Munfordville, Ky.	28	30	(1)	------	------
Lock No. 6, Brownsville, Ky.	28	30	(1)	------	------
Lock No. 4, Woodbury, Ky.	33	30	(1)	------	------
West Fork of White:					
Anderson, Ind.	10	31	(1)	------	------
Elliston, Ind.	18	30	(1)	------	------
Edwardsport, Ind.	12	7	8	13.0	8
White Basin					
Black: Black Rock, Ark.	14	30	(1)	16.9	31
Lower Mississippi Basin					
St. Francis: Fisk, Mo.	20	31	(1)	------	------
Red Basin					
Sulphur: Ringo Crossing, Tex.	20	24	24	21.0	24

[1] Continued into next month.

The month closed with stages rising throughout the Ohio Valley and the Atlantic coast region when a disturbance, which was centered over Texas the morning of the 28th, traversed the Ohio Valley attended by widespread and heavy rainfall. Except for a few headwater stations where crests were attained on the 30th and 31st, the rises continued and culminated in the floods of February. Discussion of the rises of January 30 and 31 will be included in the report for February.

WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, WILLIS E. HURD acting in charge]

NORTH ATLANTIC OCEAN, JANUARY 1939

By H. C. HUNTER

Atmospheric pressure.—Most of the North Atlantic had pressure averaging below normal. The greatest deficiency was found over waters near Ireland and thence southwestward toward the Azores. In contrast, the north-central and northeastern areas had pressure averaging above the normal, the mean at Reykjavik, Iceland, being 0.34 inch higher.

The month was remarkable for fluctuations of large amount in the pressure readings, often occurring very rapidly. The lowest marks at Horta and Lisbon, 29.30 and 29.09 inches, respectively, are notably low for those localities. At Halifax, from the 22d to 25th, inclusive, the 8:30 a. m. readings were as follows: 30.00, 29.00, 30.12, and 29.12 inches. Pressure at Reykjavik was mainly below normal from the 14th to the 22d, but almost constantly much above normal during the remainder of the month. In the early portion of the month the center of the Icelandic LOW was shifted to southeastward or southward of its ordinary location, but during the final fortnight usually to westward.

The extremes of the month, given in reports that vessels have sent to this office, are 30.60 and 28.02 inches. The high mark was noted during the forenoon of the 28th, about 100 miles to northeastward of Cape Henry, by the American tank steamer *John D. Archbold.* There was remarkably low pressure to westward of Ireland on the 14th and 15th, and the reading 28.02 appears in the late evening radio report of the 15th from an unidentified vessel near 55° N., 15° W. The report by mail of the American liner *Black Hawk*, 2 p. m. of the 14th, near 50° N., 20° W., shows 28.15 inches. A press clipping indicates that the German liner *New York*, from Cobh toward New York, when off the Irish coast on the 15th, noted pressure of 27.7 inches.

Cyclones and gales.—The month was unusually stormy; vessel reports so far received include 18 instances of force-12 winds and 20 of force 11. The accompanying table of ocean gales and storms does not include all of the force-11 encounters. There were periods of much less storminess over the most traversed parts of the ocean, particularly the 9th to 13th, and the 27th to 29th. The 14th to 22d was the most turbulent period.

TABLE 1. *Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, January 1939.*

Station	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Julianehaab, Greenland	29.60	+0.17	30.14	5	29.24	29
Reykjavik, Iceland	29.80	+.34	30.42	25	28.38	20
Lerwick, Shetland Islands	29.56	−.14	30.39	30	28.50	16
Valencia, Ireland	29.58	−.32	30.27	23	28.56	16
Lisbon, Portugal	[1] 30.07	−.08	30.45	23	29.09	28
Madeira	30.11	+.01	30.42	22	29.65	27
Horta, Azores	29.96	−.20	30.42	3	29.30	31
Belle Isle, Newfoundland	29.61	−.13	30.44	6	28.64	12
Halifax, Nova Scotia	29.86	−.12	30.58	6	29.00	23
Nantucket	29.96	−.08	30.53	8	29.24	22
Hatteras	30.08	−.06	30.53	28	29.45	18
Bermuda	30.10	−.06	30.48	29	29.72	19
Turks Island	30.08	+.03	30.14	1	29.97	18
Key West	30.09	−.01	30.30	21	29.89	14
New Orleans	30.12	−.01	30.56	25	29.52	29

[1] For 23 days.

NOTE.—All data based on a. m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

An intense storm centered near the southern edge of the Labrador peninsula on the 2d and 3d and advanced over the ocean on the following days, first toward the east-northeast, then slightly to the south of east. On the morning of the 5th the center was near 50° N., 40° W., and near here the American steamship *Warrior* noted force 12. For a day or two longer the storm remained intense, moving rather slowly, then it turned toward the northeast with greater speed but decreased strength.

Another important LOW entered the ocean likewise well to northward, the time being over a week later; this storm was central to northeastward of Newfoundland on the 12th, and became part of an extensive LOW system, reaching a long distance from west to east. By the 14th the eastern portion of this system had become very intense near 50° N., 20° W., and from this vicinity it moved slowly northeastward, remaining very violent, until the 17th, when it showed a lessening of force, and soon separated into two parts. The northeastern part moved away to the waters east of Iceland, while the southwestern part, remaining near the British Isles, largely filled up during the next few days.

Two vigorous storms affected the western part of the North Atlantic about this time, notably in lower latitudes than those previously described. The earlier of these was near Hatteras on the 16th, and traveled toward the east-northeast. By the evening of the 17th, near 40° N., 48° W., it had become stronger than before and within the next two days it had advanced to 55° N., 23° W., continuing very intense. The course then changed to northward and the LOW was near Iceland by the evening of the 20th. The second of these lower-latitude storms was central near the entrance of Chesapeake Bay on the 18th, and had reached the southeast portion of the Grand Banks by the later hours of the 19th. The 21st found this second storm near Ireland, as the southern part of a large LOW system.

This stormy period from about the 14th to 22d resulted in several ship disasters, chiefly to eastward of the 35th meridian. The Norwegian motor tanker *Jaguar*, from Minatitlan for Germany, broke in two suddenly on the 18th, near 35° N., 46° W., but apparently all the crew were rescued. The after part floated for about a fortnight, to 35° N., 32° W., where it was picked up and towed to Fayal. From large seagoing vessels remote from land three men were lost overboard, the Norwegian motor tanker *Glittre* losing the first officer. Close to shore many lives were lost from smaller craft sinking or from upsetting of small boats attempting rescue.

Numerous vessels which made port safely with crews intact suffered minor structural damage, or loss or smashing of their small boats. The table of gales shows several cases during these days of vessels encountering force 12 or force 11. Charts XIII, XIV, and XV present the conditions respectively on the 17th, 18th, and 19th.

The morning of the 22d showed a strong LOW central north of Lake Ontario, in connection with which a secondary developed to the southward. This LOW system resulted in gales which were experienced by vessels on the western part of the ocean during the next few days, as it advanced northeastward. One report of force 12, from the American tanker *H. D. Collier*, is connected with this LOW.

A succeeding storm of marked strength was centered on the forenoon of the 25th near the Bay of Fundy (see chart XVI.) This took a course at first northeastward then later northward. The Dutch steamship *Simaloer* reported hurricane-force wind resulting from it when the vessel was between Bermuda and Nantucket.

Fog.—An extensive search in records for the North Atlantic has brought to notice no earlier month with as little fog as the reports at hand show for January 1939. From regions to eastward of the 45th meridian not a single mention has come, though the area between the British Isles and the Azores had experienced considerable fog during the latter part of the month preceding.

Over waters between Nova Scotia and Hatteras a little fog was encountered in January, largely during the final three days. The 5°-square, 35° to 40° N., 70° to 75° W., furnishes reports of fog on 6 days, or more days than for December 1938. This square leads in the month's fog occurrence on the North Atlantic Ocean proper. Only on the 12th and the 16th was fog met in the Grand Banks area.

For the Gulf of Mexico only one of the 5°-squares has yielded reports of fog; that square was the northwestern district, 25° to 30° N., 90° to 95° W., which is the foggiest portion of the Gulf. There the data show 9 days of fog, almost all of them during the first fortnight of the month.

ADDITIONAL NOTE ON THE WEST INDIAN HURRICANE OF AUGUST 23–28, 1938

Mr. R. A. Dyke, forecaster at the Weather Bureau office, New Orleans, La., has recently received and has submitted some interesting material from the Mexican Meteorological Service, Tacubaya, D. F., regarding the West Indian hurricane of August 23–28, 1938, that passed over Yucatan on the 25–26th and died out near central Mexico. The following extract is from a letter received by Mr. Dyke:

> The track of the storm, we believe, passed exactly over Progreso, since there was observed a calm of about 15 minutes and the wind backed from north to south by way of west.
>
> In Ciudad Victoria the cyclonic winds began at hour 2000 on the 27th, but it was not until the 28th, between 1100 and 2000, that the wind reached its maximum, causing great damage. The precipitation was extraordinarily abundant in the north sector of the storm and rather scant in the south, and although this is normal the difference was very remarkable in this cyclone.
>
> In Zacatecas the wind backed on the 30th, with a falling barometer. The great mass of clouds crossed the country and reached the Pacific coast.

Figure 1 is from a photostat of a self-registering wind pressure gage at Progreso, Yucatan, showing the intensity and gustiness of the northerly winds before, and the southerly winds after, the passage of the calm center on August 26. Note the light winds to calm at the center.—*W. E. Hurd.*